

Symantec™ ApplicationHA agent for SharePoint Server 2010 Configuration Guide

Windows on Hyper-V

6.1

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Product_version: 6.1

Document_version: 6.1 Rev 0

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Introducing ApplicationHA agents

This chapter includes the following topics:

- [About ApplicationHA agents](#)
- [About intelligent monitoring framework](#)
- [About the agent functions and attributes](#)
- [About the ApplicationHA agent for Microsoft SharePoint Server 2010](#)
- [How ApplicationHA agents monitor SharePoint Server 2010](#)

About ApplicationHA agents

Agents are application-specific modules that plug into the ApplicationHA framework that manages the components of the configured applications.

The agents are installed when you install ApplicationHA. These agents start, stop, and monitor the components of the configured applications and report its state changes. If an application or its components fail, these agents restart the applications and its components on the virtual machine.

A virtual machine has one agent per component that monitors all the components of that type. For example, a single `GenericService` agent manages all services that are configured using the `GenericService` components. When the agent starts, it obtains the necessary configuration information from these components and then monitors the configured applications. The agents then periodically updates ApplicationHA with the component and application status.

Agents perform the following operations:

- Brings the components online

- Takes the components offline
- Monitors the components and reports the state changes

ApplicationHA agents are classified in the following categories:

- Infrastructure agents (bundled agents)
Infrastructure agents are packaged (bundled) with the base software and include agents for mount points, generic services and processes. These agents are immediately available for use after you install ApplicationHA.
- Application agents
Application agents are used to monitor third party applications such as Microsoft SQL Server, Microsoft Exchange and so on. These agents are packaged separately and are available in the form of an agent pack that gets installed when you install ApplicationHA.
The agent pack is released on a quarterly basis. The agent pack includes support for new applications as well as fixes and enhancements to existing agents. You can install the agent pack on an existing ApplicationHA installation.
Refer to the Symantec Operations Readiness Tools (SORT) Website for information on the latest agent pack availability:
<https://sort.symantec.com>

This document describes the ApplicationHA bundled agents along with their resource type definitions, attribute definitions, and sample configurations.

About intelligent monitoring framework

ApplicationHA provides Intelligent Monitoring Framework (IMF) to determine the status of the configured application and its components. IMF employs an event-based monitoring framework that is implemented using custom as well as native operating system-based notification mechanisms.

IMF provides instantaneous state change notifications. ApplicationHA agents detect this state change and then trigger the necessary actions.

IMF provides the following key benefits:

- Instantaneous notification
Faster fault detection resulting in faster fail over and thus less application down time.
- Ability to monitor large number of components
With reduced CPU consumption, IMF effectively monitors a large number of components.
- Reduction in system resource utilization

Reduced CPU utilization by ApplicationHA agent processes when number of components being monitored is high. This provides significant performance benefits in terms of system resource utilization.

About the agent functions and attributes

Every agent has a collection of attributes and performs a definite set of functions.

Attributes are the set of variables whose values configures the corresponding application component to function in a specific way. By modifying attribute values you can change the way in which ApplicationHA agent manages the component.

For example, the IP agent monitors an IP address. The specific address to be monitored is identified by the attribute "Address" whose value is the specific IP address.

Depending on the category to which an agent belongs, an agent performs either or all of the following functions:

Online	Brings the configured component online
Offline	Takes the configured component offline
Monitor	Verifies if the configured component is online

As part of the Monitor function, an agent reports the following states:

ONLINE	Indicates that the configured component is online
OFFLINE	Indicates that the configured component/application has faulted
UNKNOWN	Indicates that the agent encountered errors while monitoring the configured component

About the ApplicationHA agent for Microsoft SharePoint Server 2010

The Symantec ApplicationHA agent for Microsoft SharePoint Server manages SharePoint Server 2010 Web Applications, Service Applications, and its services, in a farm level deployment. The agent provides monitoring support in making the SharePoint Server 2010 applications and services highly available in a Symantec ApplicationHA environment.

Note: The agent does not support SharePoint Server standalone deployment. Also, in the supported server farm deployment, for high availability monitoring support of underlying Microsoft SQL Server databases you must install and configure the Symantec ApplicationHA agent for Microsoft SQL Server.

For details refer to, *Symantec ApplicationHA for Hyper-V Agent for Microsoft SQL Server 2008 and 2008 R2 Configuration Guide*.

Depending on the configuration, the agent performs the following operations:

- Monitors and starts the configured SharePoint services
- Monitors the configured Web Applications, brings them online, and takes them offline
- Monitors the configured Service Applications, brings them online, and takes them offline

If any of the configured SharePoint component fails or is unavailable, the agent attempts to start the component on the system. If the components fails to start, the agent declares the resource as faulted.

Agent functions

The agent functions of ApplicationHA agent for Microsoft SharePoint Server include the following:

Online	Starts the configured Web Applications, Service Applications, or services.
Offline	Stops the configured Web Applications and Service Applications. The agent also stops monitoring the configured services on the system.
Monitor	Verifies the status of the configured Web Application, Service Application or service. If the components are running, the agent reports the resource as ONLINE. If any of the components are not running, the agent reports the resource as FAULTED.
Clean	Forcibly stops the configured Web Applications and Service Applications. The agent also stops monitoring the configured services on the system.

State definitions

The state definitions of ApplicationHA agent for Microsoft SharePoint Server include the following:

ONLINE	Indicates that the configured Web Applications, Service Applications, or services are available.
OFFLINE	Indicates that the configured Web Applications and Service Applications are stopped on the system. It also indicates that the monitoring for the services is also stopped.
MONITOR	Indicates that the configured Web Applications and Service Applications are stopped on the system. It also indicates that the monitoring for the services is also stopped.
UNKNOWN	<p>Indicates that the agent is unable to determine the status of the configured SharePoint components.</p> <p>Following are some of the instances when the agent fails to determine the status of the configured SharePoint components:</p> <ul style="list-style-type: none"> ■ An application or service fails to exist with the name corresponding to the AppName attribute value ■ The user account entered as the FarmAdminAccount fails to have SharePoint admin privileges

Resource type definition

The resource type definition of ApplicationHA agent for Microsoft SharePoint Server is represented by the SharepointServer resource type:

```
type SharePointServer (
  static i18nstr ArgList[] = { AppType, AppName,
  Description, AppPoolMon, FarmAdminAccount,
  FarmAdminPassword, ServiceIDList }
  str AppType
  i18nstr AppName
  i18nstr Description
  str AppPoolMon = NONE
  i18nstr FarmAdminAccount
  str FarmAdminPassword
  i18nstr ServiceIDList[]
)
```

Attribute definitions

The agent attributes define the details to uniquely identify the specific resource component that is to be managed.

[Table 1-1](#) lists the attributes that are required for configuring a SharePoint Server 2010 instance.

Table 1-1 Required attributes

Attributes	Description
AppType	<p>Defines whether the agent is configured to monitor a SharePoint Web Application, Service Application, or service.</p> <p>This attribute can take one of the following values:</p> <ul style="list-style-type: none"> ■ WebApp ■ ServiceApp ■ SPSService <p>If this attribute value is set to WebApp or ServiceApp, then you must specify a value for the AppName attribute.</p> <p>If this attribute value is set to SPSService, the AppName attribute value is ignored.</p>
AppPoolMon	<p>Defines the monitoring modes for the application pool associated with the Web site being monitored.</p> <p>Configure this attribute only if AppType attribute value is set to WebApp and IIS is configured to run in the Worker Process Isolation mode.</p> <p>The attribute can take one of the following values:</p> <ul style="list-style-type: none"> ■ NONE: Indicates that the agent does not monitor the application pool associated with the Web site ■ DEFAULT: Indicates that the agent monitors the root application pool associated with the Web site. If this attribute is set, the agent starts, stops, and monitors the root application pool associated with the Web site. If the root application pool is stopped externally, the service group faults; the agent then attempts to start the root application pool. ■ ALL: Indicates that the agent starts all the application pools associated with the Web site, but monitors and stops the root application pool only. If any application pool is stopped externally, the service group faults; the agent then attempts to start the application pool. <p>The default value is NONE.</p>

Table 1-1 Required attributes (*continued*)

Attributes	Description
ServiceIDList	<p>Defines the service IDs of the SharePoint services that are managed by the agent.</p> <p>This attribute is always local, that is, it is different for each system. This attribute can take the following values:</p> <ul style="list-style-type: none"> ■ If AppType attribute value is set to WebApp, specify the service ID of the Microsoft SharePoint Foundation Web Application service. ■ If AppType attribute value is set to ServiceApp, specify the service ID of the service on which the Service Application depends. ■ If AppType attribute value is set to SPSService, specify the service IDs of the SharePoint services. <p>Note: If you are configuring this attribute manually, use the hadiscover command or the SharePoint server cmdlets to retrieve the service IDs.</p>

[Table 1-2](#) lists the optional attributes for configuring a SharePoint Server 2010 instance

Table 1-2 Optional attributes

Attributes	Description
AppName	<p>The name of the SharePointWebApplication or Service Application that is managed by the agent. The value of this attribute depends on the value of the AppType attribute.</p> <p>This attribute can take the following values:</p> <ul style="list-style-type: none"> ■ If AppType attribute value is set as WebApp, specify the Web Application name. ■ If AppType attribute value is set as ServiceApp, specify the application pool ID for the SharePoint Service Application. <p>Note: This attribute is ignored if AppType attribute value is set as SPSService.</p>
Description	<p>The display name for the configured web application, service application and its services.</p> <p>The value defined is displayed in the health view.</p>

Table 1-2 Optional attributes (*continued*)

Attributes	Description
FarmAdminAccount	<p>A user account that has the SharePoint Server Farm Admin privileges.</p> <p>User name can be of the form username@domain.com, domain\username, or domain.com\username.</p> <p>The agent uses the Farm Admin user account context to manage the services specified in the ServiceIDList attribute value.</p>
FarmAdminPassword	<p>The password of the user specified in the FarmAdminAccount attribute value.</p> <p>The password is stored in the configuration in an encrypted form.</p> <p>Note: If you are configuring this attribute manually, use the VCSencrypt command to encrypt the password.</p>

How ApplicationHA agents monitor SharePoint Server 2010

The high availability (HA) solution for SharePoint Server 2010 is a combination of monitoring and recovery support for SharePoint 2010 applications. The Symantec ApplicationHA agent manages the SharePoint 2010 Web Applications, Service Applications, and services configured on the virtual machine. Depending on the configuration, the agent monitors, starts, and stops the SharePoint components on the virtual machine. The agent detects an application failure if the configured applications become unavailable or if any of the application component faults. The agent then tries to restart the application or bring the failed component online, for a configurable number of attempts. If the applications do not start, the agent considers it as an application failure and reports the "Application critical state" to the Hyper-V host.

Depending on the configuration, the Hyper-V host then restarts the virtual machine. After the virtual machine restarts, the agent starts the configured Web sites and the associated application pools and brings the configured resources online on the system.

Configuring application monitoring

This chapter includes the following topics:

- [Considerations for configuring application monitoring](#)
- [Configuring application monitoring](#)

Considerations for configuring application monitoring

Symantec ApplicationHA provides an interface, Symantec ApplicationHA Health View, to configure and administer application monitoring.

A shortcut to access the Health View is created on the system's desktop after you install ApplicationHA. The Health View is Web-based and can be accessed using any of the available browser.

You can also access the Health View directly from a browser window using the following URL:

`https://VMNameorIP:5634/vcs/admin/application_health.html?priv=ADMIN`

Consider the following before you configure application monitoring:

- You can configure application monitoring on a virtual machine using the Symantec ApplicationHA Configuration Wizard. The wizard is launched when you click **Configure Application Monitoring** on the Symantec ApplicationHA Health View.
- You can use the wizard to configure monitoring for only one application per virtual machine.

To configure application monitoring on the same virtual machine, for any additional applications, you must use the VCS commands.

To configure another application using the wizard, you must first unconfigure the existing application monitoring configuration.

- The wizard runs in a logged-on user context. You must thus ensure that the logged-on user has administrative privileges on the virtual machine where you want to configure application monitoring.
- If you have configured a firewall, ensure that your firewall settings allow access to ports used by Symantec ApplicationHA installer, wizard, and services. For information about the ports used, refer to the *Symantec ApplicationHA Deployment Guide*.
- If the application data is stored on nested mount points, then it is required to set the dependency between these mount points. This enables ApplicationHA to monitor all the nested mount points.

To define the dependency between the nested mount points, you must set the value for MountDependsOn attribute of the MountMonitor agent. The value of this attribute must be specified as a key-value pair.

Where,

Key= mount path

Value= volume name

- After configuring SharePoint 2010 Web Application, Service Applications, and services for monitoring, if you create another Web Application, Service Application or service, then these new components are not monitored as part of the existing configuration.

In this case, you can either use the VCS commands to add the components to the configuration or unconfigure the existing configuration and then run the wizard again to configure all the components.

Note: When you configure or unconfigure application monitoring, it does not affect the state of the application. The application runs unaffected on the virtual machine.

- Verify that all applications and services hosted on the virtual machine are running.
- Ensure that creation of any new Web Applications, Service Applications, or services is not under progress.

Configuring application monitoring

Perform the following steps to configure monitoring for SharePoint Server 2010 on a virtual machine using the Symantec ApplicationHA Configuration Wizard.

Note: You can configure monitoring for multiple services and processes in a single wizard workflow. However, you cannot configure multiple applications simultaneously. To configure another application, run the wizard again.

To configure application monitoring for SharePoint Server 2010

- 1 Launch the Symantec ApplicationHA Health View, using the shortcut created or in a browser, using the following URL:
`https://VMNameorIP:5634/vcs/admin/application_health.html?priv=ADMIN`
- 2 Click **Configure Application Monitoring** to launch the Symantec ApplicationHA Configuration Wizard.
- 3 Review the information on the Welcome panel and then click **Next**.
- 4 On the Application Selection panel, click **SharePoint Server 2010** in the Supported Applications list.
- 5 On the Farm Admin User Details panel, enter the farm admin user name and password.
- 6 On the SharePoint Applications and Services panel, review the list of web applications, service applications, and services running on the virtual machine. Also, review the list of servers configured in the farm and then click **Configure**.

Note: Applications and services running on the virtual machine only are configured for monitoring. Run the wizard on all the SharePoint servers to configure monitoring for the entire SharePoint server farm.

- 7 On the ApplicationHA Configuration panel, the wizard performs the application monitoring configuration tasks, creates the required resources, and enables the application heartbeat that communicates with Hyper-V host.
The panel displays the status of each task. After all the tasks are complete, click **Next**.
If the configuration tasks fail, click **View Logs** to check the details of the failure. Rectify the cause of the failure and run the wizard again to configure the application monitoring.
- 8 On the Finish panel, click **Finish** to complete the wizard.
This completes the application monitoring configuration.
Use the ApplicationHA Health View to monitor the application status and control application monitoring.
For more details refer to the *Symantec ApplicationHA Deployment Guide*.

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